

< GaN HEMT for satellite communication (SATCOM) earth station >

MGFK50G3745A

Ku band internally matched power GaN HEMT
13.75 – 14.5 GHz BAND / 100W Multi-carrier operable

DESCRIPTION

The MGFK50G3745A, GaN HEMT with an N-channel schottky gate, is designed for Ku-band applications with multi-carrier operation.

FEATURES

- High voltage operation : VDS=24V
- High output power : Po=50.2dBm(TYP.) @ Pin=45dBm
- High efficiency : PAE=30%(TYP.) @ Pin=45dBm
- Wide spacing tone : Up to 200MHz

APPLICATION

- Amplifier for Ku-band SATCOM

QUALITY

- General & Industrial

Packaging

- Individual case

RECOMMENDED BIAS CONDITIONS

- Vds=24V • Ids=2.4A • Rg=10Ω

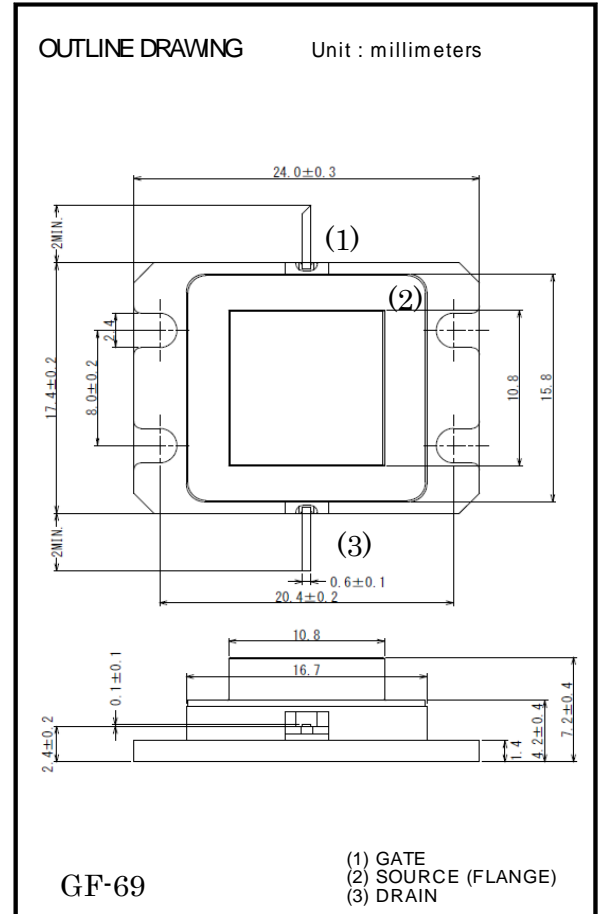
Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Vgso	Gate to Source Voltage at Operating	-10	V
Vds	Drain to source voltage	27	V
IGF	Forward gate current	160	mA
IGR	Reverse gate current	-48	mA
PT*1	Total power dissipation	375	W
Pin	Input power	≤47	dBm
Tch	Channel temperature	250	°C
Tstg	Storage temperature	-55 to +125	°C
Tc	Maximum case operating temperature	100	°C

*1:Tc=25°C

Recommended operating Condition

Symbol	Parameter	Limit	Unit
Tc	Maximum case operating temperature	85	°C
Vds	Drain to source voltage	≤24	V
IDQ	Drain current without RF drive	2.4	A



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Electrical characteristics (Ta=25°C)

Parameter	Symbol	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
Gate to source cut-off voltage	VGS(off)	VDS=24V, ID=48mA	-1	-	-5	V
Output Power	Pout *2	VDS=24V, ID(RF off)=2.4A	49	50.2	-	dBm
Power added efficiency	PAE *2	f=13.75 – 14.5GHz	-	30	-	%
Linear power gain	GLP *3	*2 : Pin=45dBm *3 : Pin=25dBm	8.0	10	-	dB
3 rd Order Intermodulation distortion	IM3	Two-tone Test, Po=41.0dBm (Single Carrier Level) $\Delta f=5\text{MHz(IM3)}, \Delta f=200\text{MHz(IM3-2)}$	-25	-	-	dBc
	IM3-2		-25	-	-	
Thermal resistance	Rth(ch-c) *4	Δf method	-	0.4	0.6	°C/W

*4 :Channel-case

Specifications are subject to change without notice

ESD *5	Class 0	-199~
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*5 :Based on EIAJ ED-4701 C-111A(C=100pF,R=1.5k Ω)

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